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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,262	11/26/2003	Yusuke Nakazawa	Q78598	6442
23373	7590	06/02/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			LIANG, LEONARD S	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/721,262

Applicant(s)

NAKAZAWA, YUSUKE

Examiner

Leonard S. Liang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-23 is/are rejected.
- 7) ☒ Claim(s) 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

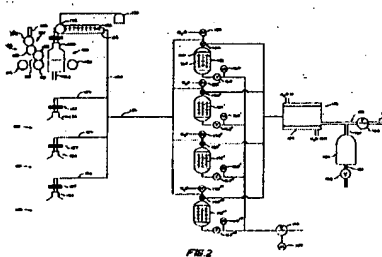
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Farber et al (US Pat 3768232).

Farber et al discloses:

- {claim 1} An image recording apparatus which records an image on a recording medium, the image recording apparatus comprising in a housing thereof (figure 2; housing inherent); a water vapor removing section which removes water vapor (figure 2, reference 104, removes both water vapor and solvent; figure 2, reference 166, removes solvent from vapor; column 1, lines 28-48; column 4, lines 55-65); a solvent recovering section which recovers vapor of organic solvent, which evaporates within the housing (figure 2, reference 180, 184; column 5, lines 27-49)



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- {claim 2} wherein the vapor of organic solvent is vapor evaporated from a recording liquid for recording the image on the recording medium (column 3, lines 18-24; column 4, lines 55-65)
- {claim 3} wherein the water vapor removing section is provided at an inlet port which takes in air from outside of the housing into the inside of the housing (figure 2, reference 122)
- {claim 4} wherein the solvent recovering section is provided at an outlet port which exhausts air from the inside of the housing to the outside of the housing (figure 2, reference 179)
- {claim 6} wherein an activated carbon filter is used as an water vapor removing section (column 2, lines 43-44)
- {claim 8} wherein the image recording apparatus is an ink jet type image recording apparatus (figure 2, reference 106)
- {claim 9} wherein the solvent recovering section is disposed within the housing (figure 2)
- {claim 10} a head that has one or more ink channels and one or more ejection portions, wherein the head is disposed within the housing (figure 2, reference 106)
- {claim 11} wherein the vapor of organic solvent is evaporated from ink drops ejected by the head within the housing (column 4, lines 55-65)

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farber (US Pat 3768232).

Farber discloses, with respect to claim 5, an image recording apparatus and an image recording method (as applied to claim 4 above).

Farber differs from the claimed invention in that it does not explicitly disclose:

- {claim 5} wherein the housing is in a substantially sealed state except for the inlet port and the outlet port

Based on the specification, it is apparent that though no explicit housing is shown, the entirety of figure 2, a continuous solvent recovery system, is meant to be enclosed in a housing. That being said, it is naturally suggested that the inlet port and outlet port must be in connection with air outside the housing. As a result, it is naturally suggested that the housing is in a substantially sealed state except for the inlet and outlet ports.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Farber et al. The motivation for the skilled artisan in doing so is to gain the benefit of providing an external shell to support the disclosed solvent recovery system, so that it does not just simply hang in mid-air.

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Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farber et al (US Pat 3768232) in view of Gisser et al (US Pat 5395540).

Farber et al discloses, with respect to claim 7, an image recording apparatus and an image recording device (as applied to claim 1 above).

Farber et al differs from the claimed invention in that it does not disclose:

- {claim 7} wherein a silica gel filter is used as the water vapor removing section

Gisser et al discloses, with respect to claim 7, a silica gel drier used in combination with an activated carbon filter to filter and remove water vapor (column 7, lines 60-63). The use of a silica gel filter in combination with or in lieu of an activated carbon filter to remove water vapor is well-known in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Gisser et al into the invention of Farber et al. The motivation for the skilled artisan in doing so is to gain the benefit of improving filtering so as to separate the solvent from water vapor.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

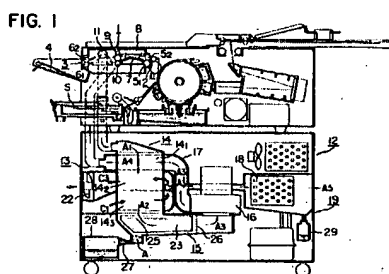
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9, 12-14, 17-20, and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Katayama et al (US Pat 3997977).

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Katayama et al discloses:

- {claim 1} An image recording apparatus which records an image on a recording medium, the image recording apparatus comprising in a housing thereof (figure 1); a water vapor removing section which removes water vapor (figure 1, reference 11+channel connected to it all the way down to figure 1, reference 26); a solvent recovering section which recovers vapor of organic solvent, which evaporates within the housing (figure 1, reference 14)



- {claim 2} wherein the vapor of organic solvent is vapor evaporated from a recording liquid for recording the image on the recording medium (column 3, line 24-column 4, line 30)
- {claim 3} wherein the water vapor removing section is provided at an inlet port which takes in air from outside of the housing into the inside of the housing (figure 1, reference 22; column 4, lines 13-15)
- {claim 4} wherein the solvent recovering section is provided at an outlet port which exhausts air from the inside of the housing to the outside of the housing (figure 1, reference 14; if we consider top part of figure 1 to represent one housing (containing recording means and fixing/drying chamber) and bottom part of figure 1 to represent another housing (containing heat exchange

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condenser; top housing is here considered "inside" the housing and bottom housing is considered "outside" the housing)

- {claim 5} wherein the housing is in a substantially sealed state except for the inlet port and the outlet port (figure 1)
- {claim 6} wherein an activated carbon filter is used as the water vapor removing section (figure 1, reference 26; column 2, lines 32-42; filter 26 considered part of water vapor removing section because it's linked to suction port 11 and used to filter mist)
- {claim 7} wherein a silica gel filter is used as the water vapor removing section (figure 1, reference 26; column 2, lines 32-42)
- {claim 9} wherein the solvent recovering section is disposed within the housing (if we consider in this case, the entire figure 1 to serve as a single housing)
- {claim 12} An image recording method (figure 1); removing water vapor in a housing of an image recording apparatus (figure 1, reference 11); recovering vapor of organic solvent in the housing, which evaporates within the housing (figure 1, reference 14)
- {claim 13} wherein the recovering of vapor of organic solvent occurs within the housing (figure 1, reference 14; if housing is viewed as entire figure 1)
- {claim 14} wherein the water vapor is removed close to an inlet port which takes in air from an outside of the housing of the image recording apparatus into an inside of the housing of the image recording apparatus (figure 1, reference 22; column 4, lines 13-15)



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- {claim 17} wherein water vapor is removed with an activated carbon filter (figure 1, reference 26; column 2, lines 32-42)
- {claim 18} wherein water vapor is removed with a silica gel filter (figure 1, reference 26; column 2, lines 32-42)
- {claim 19} wherein the water vapor removing section removes water vapor from air being taken in into the housing (figure 1, reference 22; in sense that air from outside housing is re-circulated back to the fixing/drying chamber)
- {claim 20} wherein a water vapor content of air at the inlet port is higher than a water vapor content of air at a downstream side of the water vapor removing section (figure 1; if we consider reference 26 to be downstream side; there's not as much water vapor (i.e. mist) left at this point (column 5, lines 13-15))
- {claim 22} wherein the removing water vapor comprises removing water vapor from air being taken in into the housing (figure 1; because air taken from outside is re-circulated back to the fixing/drying chamber)
- {claim 23} wherein air with the water vapor removed is taken in into the inside of the housing (figure 1 because air is re-circulated)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 10-11, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al (US Pat 3997977) in view of Anderson et al (US PgPub 20030179260).

Katayama et al discloses, with respect to claims 8, 10-11, and 21, an image recording apparatus (as applied to claims 1-7, 9, 12-14, 17-20, and 22-23 above).

Katayama et al differs from the claimed invention in that it does not disclose:

- {claim 8} wherein the image recording apparatus is an ink jet type image recording apparatus
- {claim 10} a head that has one or more ink channels and one or more ejection portions, wherein the head is disposed within the housing
- {claim 11} wherein the vapor of organic solvent is evaporated from ink drops ejected by the head within the housing
- {claim 21} a head comprising a plurality of ink channels and a plurality of ejection portions, wherein the head is disposed within the housing

Anderson et al discloses:

- {claim 8} wherein the image recording apparatus is an ink jet type image recording apparatus (figure 3; Anderson et al discloses a vapor handling system for ink jet print head 320)
- {claim 10} a head that has one or more ink channels and one or more ejection portions, wherein the head is disposed within the housing (naturally suggested in head 320)
- {claim 11} wherein the vapor of organic solvent is evaporated from ink drops ejected by the head within the housing (figure 3, reference 335)

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- {claim 21} a head comprising a plurality of ink channels and a plurality of ejection portions, wherein the head is disposed within the housing (naturally suggested in head 320)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the electrophotographic printing means of Katayama et al with the ink jet printing means of Anderson et al. The motivation for the skilled artisan in doing so is to gain the benefit of more cost effective and simpler printing means.

#### ***Allowable Subject Matter***

Claims 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 15 discloses, "wherein the solvent is recovered close to an outlet port which exhausts air from the inside of the housing of the image recording apparatus into the outside of the housing of the image recording apparatus," which was not found, taught, or disclosed in the prior arts. This limitation could be rejected under interpretation that the bottom part of figure 1 serves as a housing "outside" the top housing containing the recording means. However, such an interpretation is not possible because in claim 13 (a claim from which claim 15 depends), it was interpreted that the housing is viewed as the entire figure 1 (both top and bottom halves).

Claim 16 depends from objected claim 15.

#### ***Response to Arguments***

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Applicant's arguments filed 03/01/06 have been fully considered but they are not persuasive.

The main thrust of the applicant's argument is that "Farber relates to a system for removing and recovering organic pollutants from output gas streams of chemical process plants." Therefore, the applicant argues that the drier section, bed of absorbent, condenser, and storage tank disclosed by Farber is not contained in a housing.

The examiner respectfully disagrees. First, the examiner contends that Farber is not so much directed to chemical process plants as it is directed to an image forming apparatus which is framed in the context of a chemical process plant (see column 4, lines 45-65, which clearly disclose a printing section). Next, the claimed invention does not give any bounds or definition to the word "housing." Therefore, for claims 1-11, it would be reasonable for the examiner to interpret housing as something as broad as, for example, the building which contains the image recording apparatus. The examiner reminds the applicant that the broadest reasonable interpretation must be given the claims.

The examiner notes however, that the applicant has limited the definition of "housing" in claim 12 by citing a housing of an "image forming apparatus." In light of this amendment, Farber cannot be used to reject claim 12.

Therefore, the examiner has maintained the rejection for claims 1-11 and has issued a new rejection as well for all the claims.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Park (US Pat 5884128) discloses a liquid carrier recovery apparatus for liquid electrophotographic printer.

Howe et al (US Pat 4733272) discloses filter regeneration in an electrophotographic printing machine.

Yamaji et al (US Pat 3854224) discloses a device for heating and drying copy mediums.

Moraw et al (US Pat 4462675) discloses a process and apparatus for thermally fixing toner images.

Mishra (US Pat 4687319) discloses a liquid carrier reclaiming apparatus.

Tanaka et al (US Pat 3880515) discloses a carrier liquid vapor recovering device electrophotographic apparatus.

Makino et al (US Pat 5012737) discloses an ink feeder with moisture removal.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S. Liang whose telephone number is (571) 272-2148.

The examiner can normally be reached on 8:30-5 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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**STEPHEN MEIER**  
**SUPERVISORY PATENT EXAMINER**